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(54) Title: POLYMERISATION OF ETHYLENICALLY UNSATURATED MONOMERS

(57) Abstract: Ethylenically unsaturated, particularly acrylic, monomers are polymerised using a catalyst system including a manganese carbonyl initiator, an organic halogen reactive substrate and an allylic halide chain termination agent. Desirably the manganese carbonyl initiator is a dimanganese compound, particularly dimanganese decacarbonyl ( $\text{Mn}_2(\text{CO})_{10}$ ). The catalysis mechanism appears to involve initiator homolysis, abstraction of halogen from the reactive substrate forming an organic free radical which acts as a chain initiator for polymerisation and eventual reaction of the propagating chain radical with the chain terminating agent. The speed or extent of reaction may be modified by the inclusion of Lewis acids in the reaction mixture. The resulting polymers are telechelic and may have different end groups. The polymers can be reacted further to functionalise them and/or to form block copolymers.